

Correspondence

The Editorial Board will be pleased to receive and consider for publication correspondence containing information of interest to physicians or commenting on issues of the day. Letters ordinarily should not exceed 600 words, and must be typewritten, double-spaced and submitted in duplicate (the original typescript and one copy). Authors will be given an opportunity to review any substantial editing or abridgment before publication.

Treatment of Heat Stroke at Parkland Memorial Hospital

TO THE EDITOR: I would like to respond to the correspondence entitled "Treatment of Heat Stroke" in the September issue.¹

The author, Dr. Farrell, noted that "Recently on the CBS Evening News, a heat-stroke victim was shown being given the recommended ice treatment at a famous Dallas hospital affiliated with a distinguished school." (It was, in fact Parkland Memorial Hospital in Dallas.) Dr. Farrell then stated that the external application of ice is the wrong treatment for heat stroke. He points out that by its vasoconstrictive effect on skin arterioles, it may actually interfere with the normal process of heat loss through the skin and that evaporative cooling should be considered as a better alternative.² He further went on to say that, first, one should treat the hypovolemic shock and the associated electrolyte deficiencies and imbalances, and, second, lay the naked patient on a rubber or plastic sheet, wrap him in another of cotton continually doused with water and use fans to hasten the process of evaporation.

Coming from Parkland, an institution that has produced no less than 15 authoritative papers on the pathophysiology and treatment of environmental heat illness, I would like to make a few comments and recommend three of the more comprehensive reviews from this institution.³⁻⁵ First, I disagree with Dr. Farrell's sequence of events in the treatment of heat stroke. Hypotension which may occur as a result of the pronounced peripheral vasodilatation during hyperpyrexia, will often respond to cooling alone. If such a patient receives large quantities of saline or plasma expanders while he is hyperthermic, subsequent cooling and peripheral vasoconstriction may overload the central circulation and produce acute pulmonary edema. On the other hand, if hypotension persists after cooling, appropriate agents used in therapy of cardiogenic

shock should be administered, including fluids and pressors, because the patient may have myocardial damage from heat injury per se or lactic acidosis. This is not only the recommended treatment here at Parkland but it is also advocated by many others.⁶⁻⁸

Second, I would like to address his comment on the method of lowering the core temperature in heat stroke patients. In the article from *The Lancet* that was referred to, comparison was made between immersion in an ice bath and having the patient lie on a net suspended over a bath with atomized water at 15°C being sprayed continually from above and below while air at various temperatures was blown over the subject to evaporate the wet surface.² The beginning core temperature of the volunteers was 39.5°C before they underwent the experiment. However, it is generally recommended that the active cooling process of heat stroke patients be curtailed when core temperature reaches 39°C.^{3,8,9} Indeed, the commonly employed definition of heat stroke includes, among other things, hyperpyrexia to a temperature of greater than 41°C.^{3,6,8} Comparison between the various cooling procedures down to a core temperature of 39°C mentioned by the authors of *The Lancet* article showed no significant difference in the time it took to cool the volunteers between any of the methods of lowering body temperature. I know of no study in the literature comparing the differences in morbidity and mortality between the various methods used to cool core temperature in heat stroke patients. I suspect the outcome for victims of heat stroke is determined more by attention to an airway, avoiding aspiration, searching for infection, treating central nervous system abnormalities including coma and convulsions, and watching for cardiovascular complications and arrhythmias, than the method chosen for cooling the patient.

Third, the medical residents who staff the emergency room at Parkland are well instructed in all the various modalities of lowering body

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temperature including advantages, disadvantages and hazards associated with each method. The decision as to which one to employ is left to the resident in charge who in turn uses his or her clinical judgment, depending on the circumstances involved and the particular aspects of each individual case, to decide what is best for the patient.

Finally, the comment was made by Dr. Farrell that the patient who was shown on the CBS Evening News being given the ice treatment died the following day, implying that the method chosen for lowering the body temperature was somehow responsible for hastening this patient's demise. Without going into the details of the case, I must emphasize that this particular patient died from something completely unrelated to her heat illness.

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Correction: Hypoglycemia and Accidental Hypothermia

TO THE EDITOR: Due to typing errors in the preparation of my manuscript, "Hypoglycemia and Accidental Hypothermia in an Alcoholic Population" (*West J Med* 133:105-107, Aug 1980), some inconsistencies are present in the article as published. I wish to correct them.

First, on page 106, under the heading "Patients and Methods," paragraph 2, the second sentence should read as follows: "The highest serum glucose value was 317 mg per dl in a patient with chronic pancreatitis (case 2)." The manuscript stated (incorrectly) "314 mg per dl" and this figure is not consistent with the data given in Table 1.

Second, the survival statistics quoted in the text

are inconsistent with the data in Table 1. Case 10 is listed as "Alive" in the table; that patient, in fact, died. The text is correct.

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Asymmetrical Hearing Loss

TO THE EDITOR: In the August 1980 issue, Dr. Joseph LaDou reviews the subject of asymmetrical hearing loss in noise-exposed industrial populations.¹ His conclusion, based on a study by Alberti and co-workers,² is that "in [cases of] unexplained asymmetrical thresholds, otologic and audiologic consultations should be obtained, as well as vestibular tests, x-ray studies of the temporal bone and advanced hearing tests as indicated." I agree with Dr. LaDou, but feel that his discussion of the data may be misleading and seems to justify an opposite conclusion.

In the study he refers to, 281 patients were evaluated otologically because of pure-tone threshold asymmetries exceeding 15 dB, averaged at 0.5, 1, 2 and 4 kHz. Of these, 108 had extensive workups for retrocochlear disorders, usually including vestibular testing and tomography. Dr. LaDou states that "no treatable disorders were found." In fact, the point of the study was that no treatable *retrocochlear* disorders were found (one arachnoid cyst was discovered). Almost a third of the study group (92/281) had medically or surgically treatable disorders: otosclerosis, otitis media, otitis externa and Meniere disease. Another 54 patients received specific diagnoses other than noise-induced hearing loss or idiopathic sensorineural hearing loss; these included congenital hearing loss, Paget disease, sudden hearing loss and posttraumatic cases. Overall, in more than half the group there were specific diagnoses. Even when medical or surgical treatment is not possible, this information is useful for prognosis, counseling and (obviously) compensation purposes. Presumably, aural rehabilitation and hearing aids were also recommended for many of these patients.

The incidence of specific and treatable diagnoses may be even higher in workers whose asymmetrical hearing thresholds are discovered on routine audiometry as part of an industrial hearing conservation program. Alberti's patients were seen for assessment of compensation, after a noise-exposed career, with an average age of 60.²